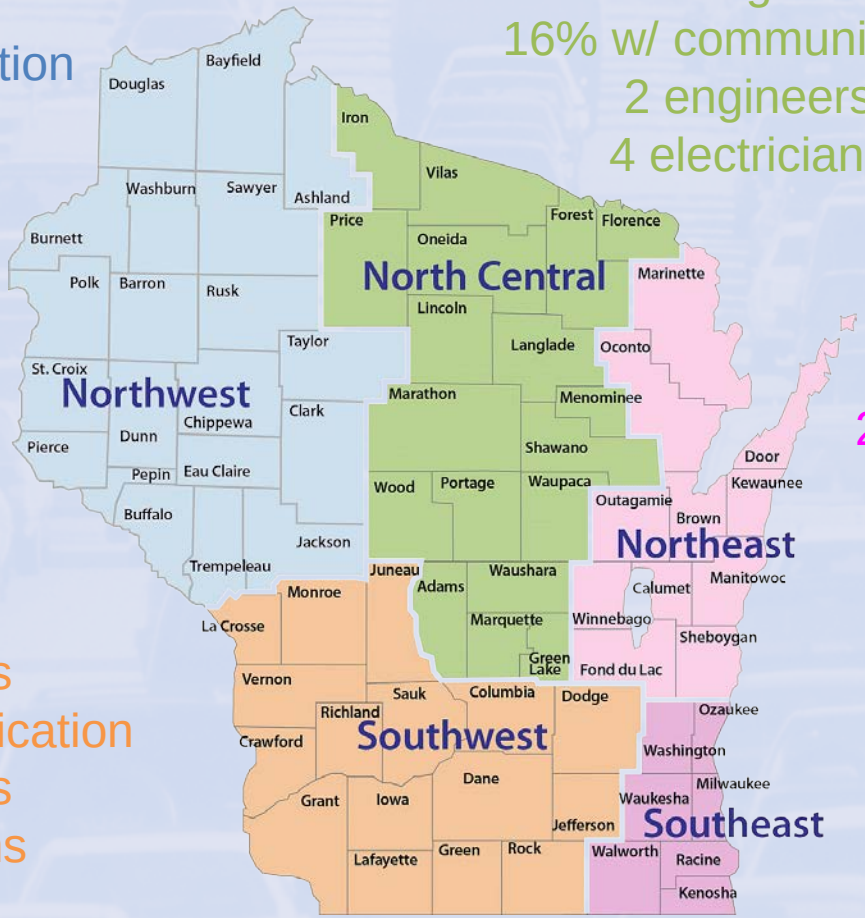
WisDOT Case Examples Using SPMs

January 27, 2016

Agency Factoids – WisDOT

122 Signals
99% w/ communication
2 engineers
4 electricians

94 Signals
16% w/ communication
2 engineers
4 electricians



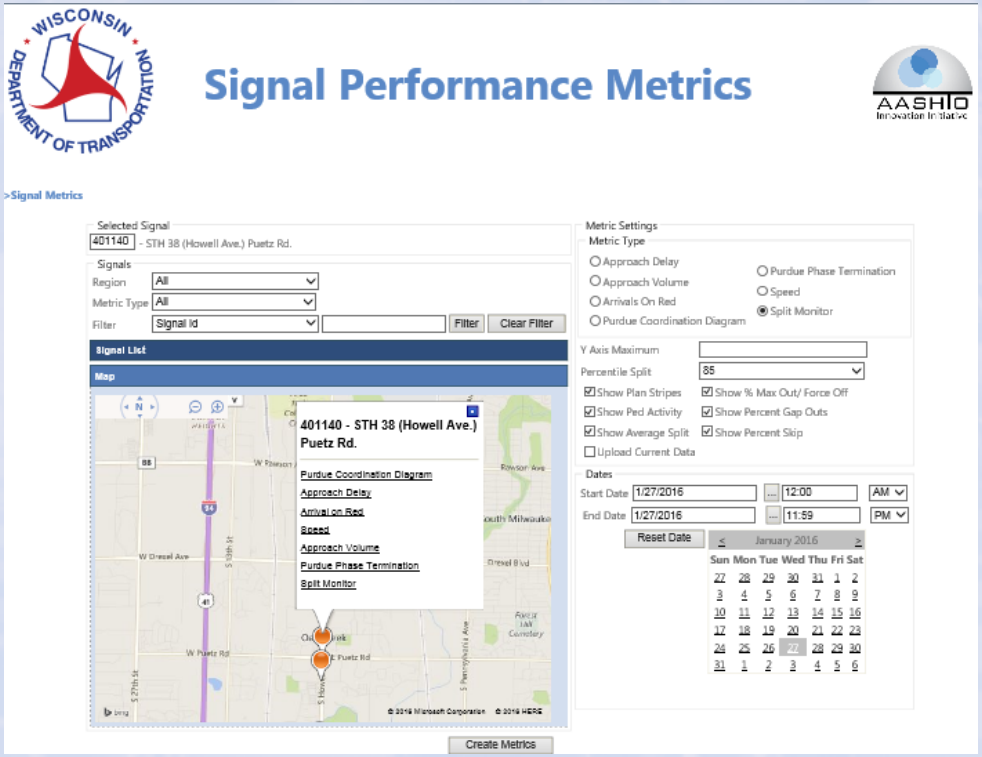
115 Signals
29% w/ communication
2 engineers
4 electricians

160 Signals
79% w/ communication
4 engineers
6 electricians

453 Signals
23% w/ communication
9 engineers
8 electricians

Approximately 950 signals statewide with communication to 400 of the signals.
~ 50% fiber & 50% cellular

Agency Factoids – Systems



- Deployed UDOT Signal Performance Metrics
  - ~170 intersections collecting high resolution data*

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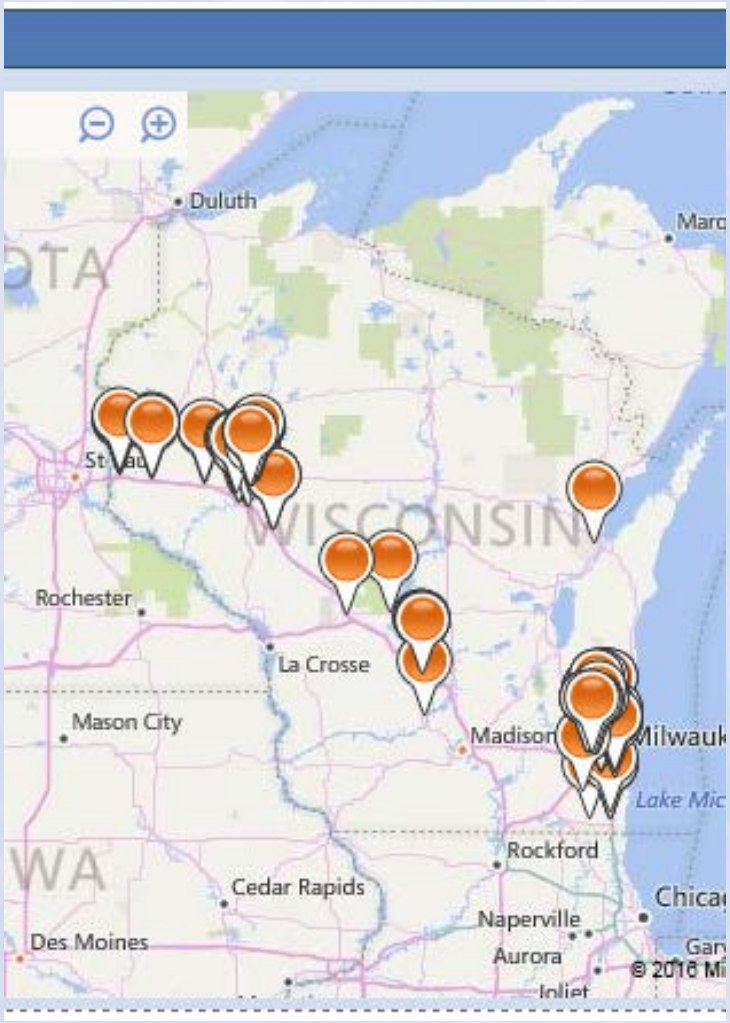
Agency Factoids – Detection & PreEmption

- Stop Bar Detection (left turns and side street)
  - 6’ x 20’ typical
- Dilemma zone detection on the mainline and high speed side streets
  - Regional variances in layout/design
- Loop, Video and Microwave all used
  - Regional Preference
- Use Lane Group Detection
  - Considering shift to Lane by Lane for performance measures
- Loops typically numbered such that first digit indicates phase it is associated with
- Detection failures are identified by our travelling public
- EVP is installed upon request (approx. 30% currently)
- Railroad Preemption at approximately 24 state owned signals

WisDOT Experience



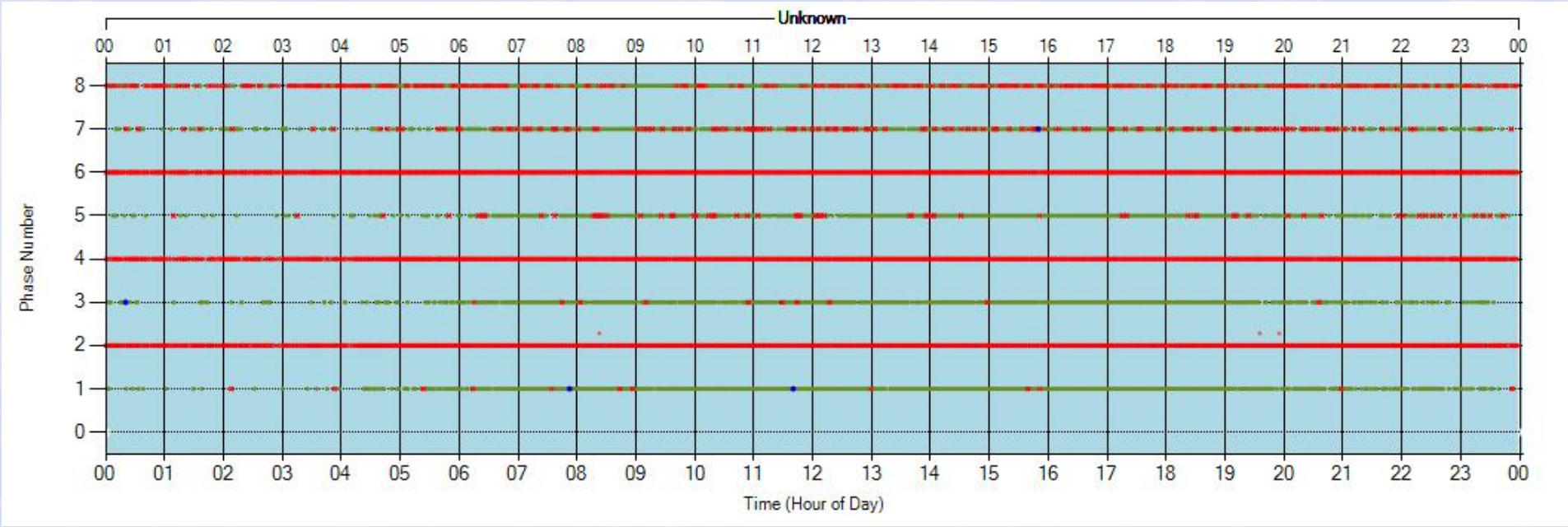
- Nov 2014 – IT project approved
- May 2015 - Test intersections were added
- July 2015 – Test intersections communicating with system and additional intersections (ASC3s with fiber) added

WisDOT Next Steps

- Add EPAC intersections on fiber to SPM system
- Create alarms/reports
- Figure out how to get data via cellular modems
- Work with our IT staff on storage space issues
- Make sense of adaptive system performance metrics
- Continue to add remote detection to the remaining signals
- Develop operations based performance measures

In the Meantime…

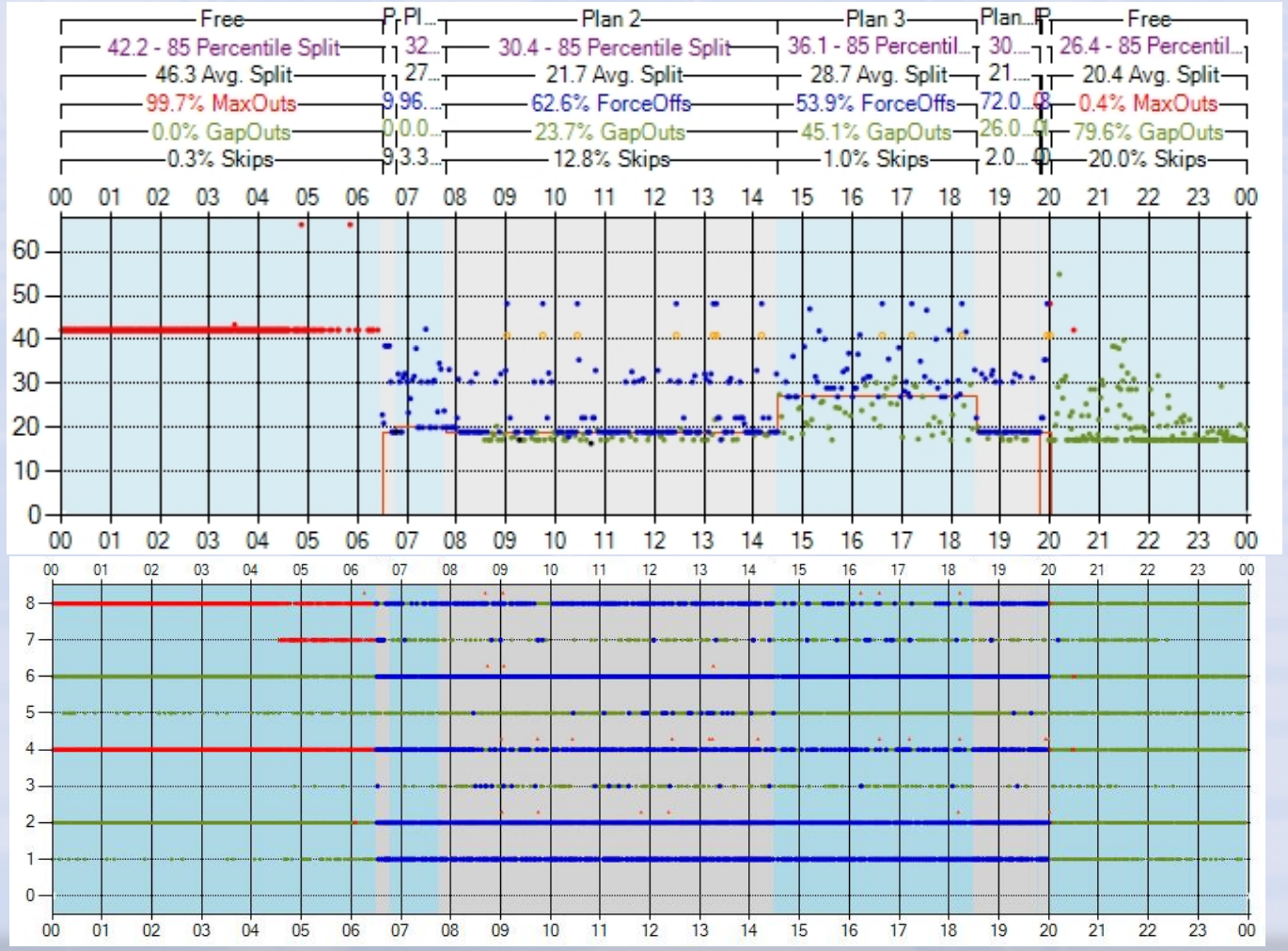
Identifying Detection Issues using Phase Termination Diagram



*Video Detection Incorrectly Mapped

In the Meantime…

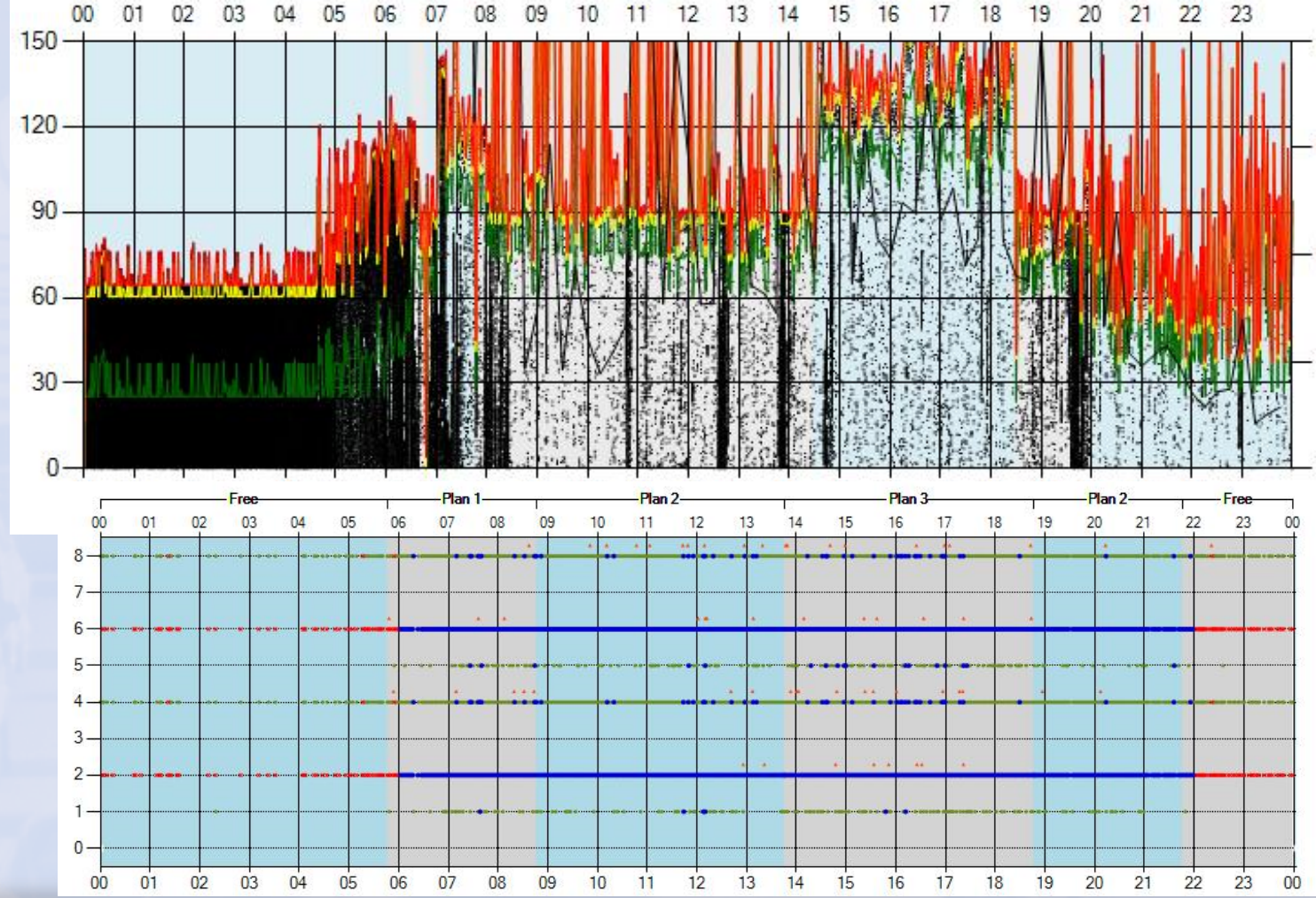
Identifying Issues using Phase Termination Diagram & Split Monitor



In the Meantime…

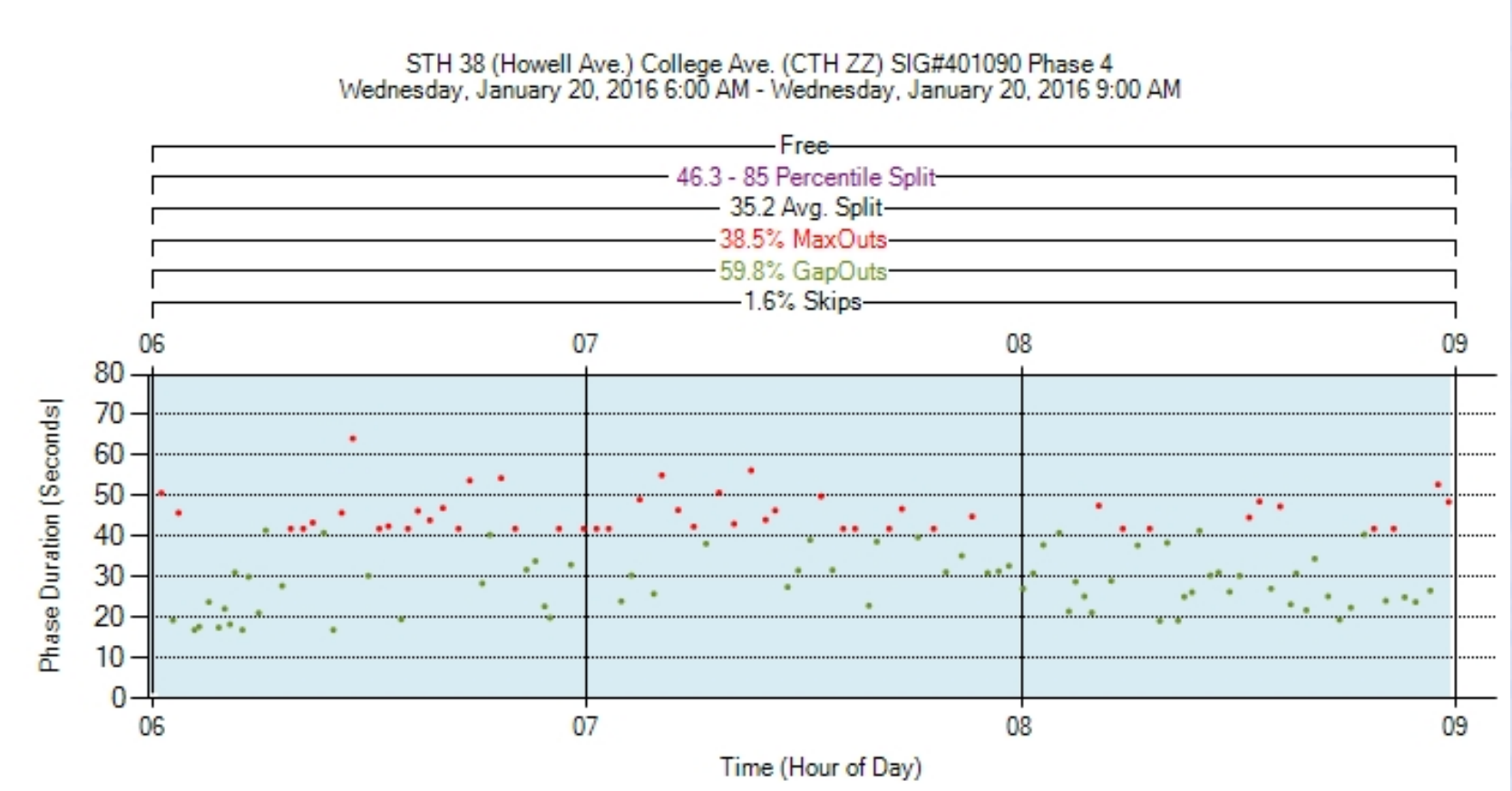
Identifying Issues using Purdue Coordination Diagram

& Phase Termination Diagram



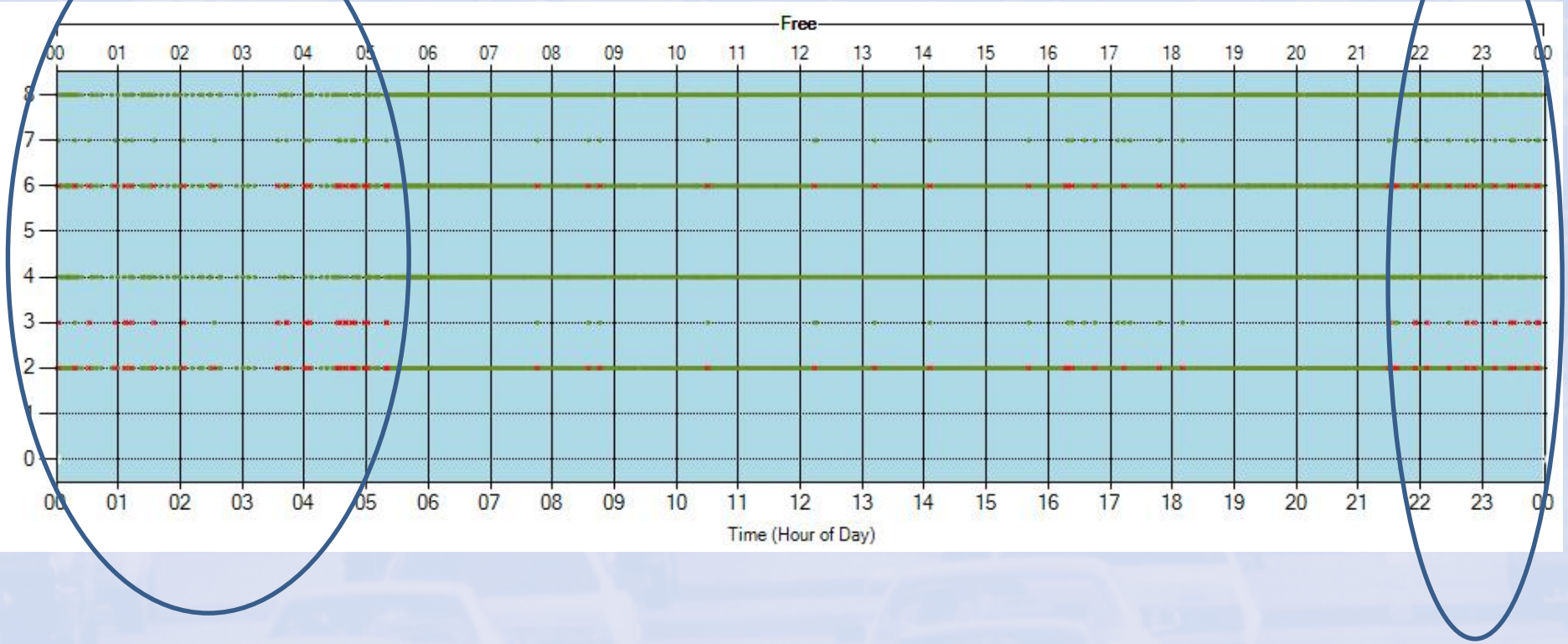
In the Meantime…

Identifying Short Splits with Split Monitor



In the Meantime…

Identify Issues with Adaptive System



Questions?

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